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Neuromorphic Computing for Edge AI

Neuromorphic Computing Technology is a brain-inspired sensing and processing hardware for more efficient and adaptive computing. It promises energy-efficient implementation of human cognition, such as interpretation and autonomous adaptation. Although the communication pathways in the brain and other neural systems cannot be directly translated into electronic circuits, these mathematical models provide the basis for the implementation. Various hardware realizations are currently discussed such as: mixed-signal analog/digital CMOS circuits, asynchronous event-based communication and processing schemes as well as memristive, phase-change, ferroelectric or spintronic devices, and other nano-technologies. In this tutorial we will introduce these realizations and discuss merits and challenges to reach the goal for efficient neuromorphic computing hardware for edge intelligence systems.